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IHE Technical News

OCTOBER 2024 ISSUE

in partnership with 

Stability and convergence in dynamic models

As previewed at the Aimsun User Day, held in September in Manchester, we are very happy to present the new guidance from Aimsun on stability and convergence in dynamic models. The guidance has been written with the support of the UK Department for Transport (DfT).

Overview

Dynamic assignment is a powerful tool that can provide detailed predictions of travel time across a network over time. However, non-conformance with the DfT's Transport Appraisal Guidance (TAG), specifically regarding convergence, stability, and robustness, has largely restricted the application of dynamic assignment to operational modelling, development planning and event planning.

This document outlines a method that ensures dynamic assignment models can reach more stable results. The aim is to provide principles and best practice for practitioners to follow

when developing dynamic assignment models, particularly in relation to model stability and convergence.

Summary of recommendations

In summary, we advise practitioners to carry out the following tasks when developing dynamic models to ensure that models converge and provide stable, robust results:

- Remove sources of stochasticity where not needed
- Monitor stability, sensitivity and sensibility
- Target RGap matrix
- Calculate the relative gap using probability that a path is chosen not the number of vehicles assigned
- Use Instantaneous or Time-Dependent Shortest-Path (TDSP) costs averaged over multiple replications and analytical functions for low flow links
- Use a warm start from the

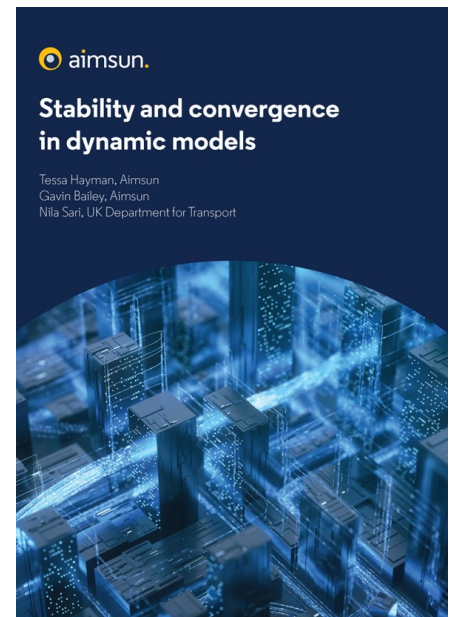
- base model in dynamic assignment changing the assignment step size when paths go through the scheme area or have a high rgap
- Use path assignment skims for outputs

Document

Read the document for a complete explanation of the points above, including a full illustration using a test model of Barnsley.

[View document](#)

Aimsun



 aimsun.

Stability and convergence in dynamic models

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DISCLAIMER:

The views reflected in this bulletin do not necessarily reflect the views of the IHE

Luton Borough Council Milepave™ July 2024 Scheme



Miles Macadam recently completed the second phase of a resurfacing programme in partnership with Luton Borough Council. Luton aim to be a net zero town by 2040, ten years ahead of the national target. To reduce construction emissions, the council adopted a whole life carbon approach when selecting suppliers. Miles Macadam was chosen for its durable, low-carbon materials, supporting this goal. Luton has used Miles Macadam's low-carbon Milepave™ grouted macadam in its maintenance programme for several years and, after a successful 2023 trial of the new zero-carbon material Bioseal™, they decided

to extend the trial into 2024 in addition to their standard Milepave™ maintenance programme.

The programme featured a variety of roads across Luton, some were overlaid with Miles Macadam's Milepave™ which provides a 35% saving in carbon emissions compared to traditional materials due to its lower resource consumption, reduced bitumen content, and more energy-efficient manufacturing process. To further minimise the carbon footprint, the remaining roads in the programme, Barton Road and Birdsfoot Lane, were resurfaced using Bioseal™, a

biogenically modified asphaltic grout. This biogenic material acts as a Carbon Capture and Storage (CCS) vessel, permanently sequestering carbon within the road surface.

Delivered Programme of Work:

- 22,078m² of surfacing
- 81.35 tCO₂e total emissions

Environmental Saving:

- Savings of 239.33 tonnes in aggregates and 33 tonnes in straight run bitumen over conventional materials
- Milepave™ saved 35% in carbon emissions in comparison to a traditional surfacing material and a non-carbon neutral surfacing contractor
- Additional sites utilising Bioseal™ saved a further 21% in carbon emissions
- Increased performance and subsequent lower whole life carbon costs

Financial Saving:

- Designed system to last longer, address specific issues and ensure lower whole life cost

Miles Macadam



SRL launches pioneering signal solution



SRL Traffic Systems has become one of the first manufacturers to achieve TOPAS 2540A compliance for its next generation of portable traffic signals. UltraLight is its first compliant signal and will be launched at Highways UK. The product forms the basis of REMOS, another new launch and one of the first scalable remotely operated temporary signal solutions to enable off-site operation at multiple locations, including those in rural areas.

UltraLight portable traffic signal

Since its launch in June 2023, TOPAS 2540A compliance is increasingly stipulated in intelligent transport system (ITS) contracts. UltraLight's compliance allows customers to quickly identify it as a safe and effective solution, facilitating diligent procurement.

A competitive run time and the longevity of the batteries' bullet lock protection precludes the need for frequent exchanges, saving energy, time and money and minimising the amount of time that road workers need to spend in live highways scenarios.

The new product is compatible with SRL's Solar PLUS, enabling UltraLight customers choosing to incorporate the solar technology into their signals to harness renewable energy and limit

their carbon footprint.

UltraLight is engineered to withstand the toughest weather conditions: it is IP57 rated and protects against water ingress. The signal incorporates SRL's new radio acoustic wave stabiliser which minimises communication interference and a new optimum size antenna ground plate that promotes reliable transmission and accurate telematic monitoring. It also features as standard SRL's enhanced adaptive detection system with automatic configuration.

All SRL's portable traffic signals manufactured in future will be TOPAS 2540A compliant. The company already has a fleet of the latest 2516D TOPAS registered variable message signs (VMS) and is focused on gaining additional certifications for further product categories.

REMOS remotely operated signal solution

Designed to allow traffic management organisations to minimise the number of personnel stationed on site in live traffic lanes, REMOS promotes safety, minimising the risk of accidents and roadside abuse.

Labour costs too are minimised as one operative may manage several sites, monitoring traffic flows and efficiently making frequent interventions to prevent and eliminate bottlenecks. REMOS' single-person control also facilitates reliable operation, even in the face of the frequent staff shortages that characterise the traffic management sector.

The only product to incorporate bandwidth compression technology, REMOS not only reduces video image streaming costs but is also the most resilient solution on the market. It offers clear line of sight on all approaches.

The environmental benefits of the solution are significant: SRL estimates that the deployment of REMOS can save contractors in the region of 3,564 kg CO₂ per operative per annum no longer required on site.



Continued from page 3

REMOS incorporates temporary traffic signal boxes, a REMOS signal head with built-in CCTV cameras, along with a remote traffic management control box (RTMC) and SRL Control Hub subscription. The new solution has undergone successful trials and will be piloted early next year.

SRL's chief executive officer Mark Eburne said: "SRL is laser-focused on the development of innovative,

sustainable ITS solutions that promote safety and efficiency on our road networks. We are very proud to launch two such pioneering products to the traffic management sector, and to be one of the first manufacturers to achieve the new TOPAS 2540A compliance."

SRL is one of Europe's largest manufacturers and suppliers of portable and temporary ITS equipment and

integrated solutions to the traffic management, construction, utilities and events sectors. Its product portfolio comprises CCTV, work-zone protection barriers and ANPR in addition to traffic and pedestrian signals, VMS and integrated solutions.

For further details, please visit the [SRL website](#)

SRL

Liverpool City Region is using VivaCity data to drive their Active Travel vision

In 2019 the Liverpool City Region Combined Authority declared a Climate Emergency. Since then, the mayor set out an [ambitious vision for Active Travel](#) to be the best place to walk and cycle in the UK. Liverpool City Region secured [government funding totalling £70m](#) to support active travel schemes and [working with VivaCity](#) has been key to accessing the funding.

Find out how Liverpool City Region is using VivaCity data to drive their Active Travel vision.

The challenge

Liverpool City Region is working to make their bold Active Travel vision become a reality. The Combined Authority, like others in the UK, saw the number of people walking and cycling increase during the pandemic. Since then, Active Travel has dropped but remains above pre-pandemic levels.

However, the aim is to get more people to walk and cycle, not just keep numbers as they are. In order to succeed, the authority needs evidence to understand the impact of their schemes to:

- **Build what works.** Evaluate which

schemes work and continue building.

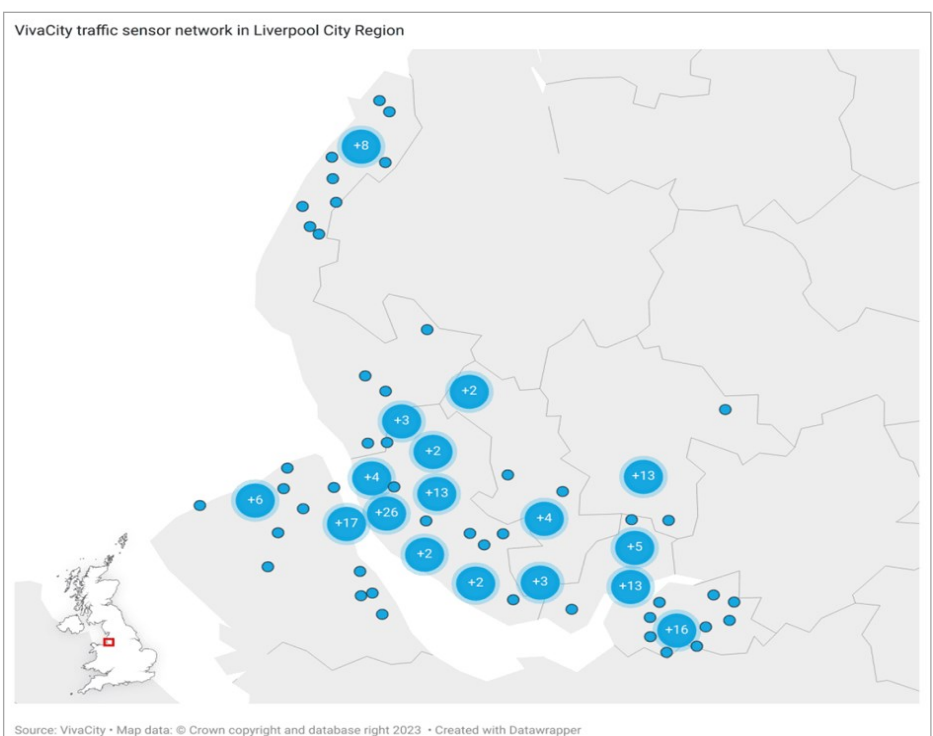
- **Make the case.** Showcase the return on investment and make a case for more funding.
- **Mythbust.** Convince communities who are vocal against reallocating public space for active travel using independent, trustworthy data sources.

The solution

Liverpool City Region chose to work with VivaCity to grow their evidence base on

the transport network. Since 2019, the authority has installed ~190 traffic monitoring sensors across the region with a further 40+ in development.

VivaCity sensors have a wide range of capabilities from e-scooter detection, counts, speeds and more. This allowed Liverpool City Region to optimise data collection and select locations that support use cases beyond active travel. All of its sensors provide multi-modal data on traffic flows (Classified Counts)



and path movements (Tracks). About a quarter collects speed data to understand safety issues. Some locations have also been set up with features such as Dwell Times, Occupancy, Journey Times, Turning Counts or Near Miss.

on two sides along a busy carriageway. VivaCity Classified Counts data was used to evaluate the scheme.

Comparing data before and after showed a notable increase in active travel users as a result of the new

Make cycling safer

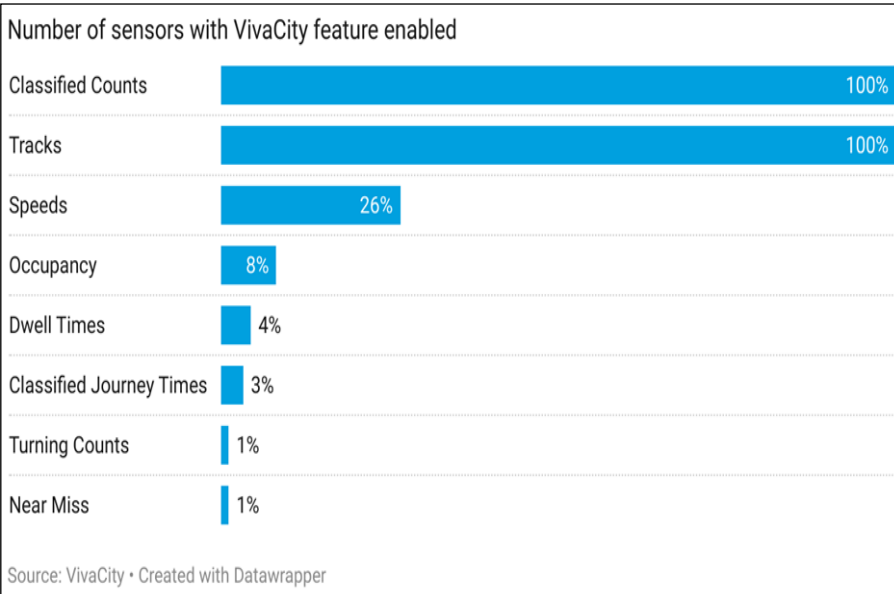
VivaCity data has also helped to inform the design of new Active Travel schemes aimed at making cycling safer and promoting modal shift.

In July 2024, Liverpool City Council started the development of a £2m Active Travel scheme at Catharine Street. The site is a four lane road link in the city centre with around 8,000 vehicles and 400 cyclists a day. Catharine Street has a speed limit of 30mph but vehicles often exceed this. The scheme will introduce a segregated cycle lane on both sides and connect cyclists to a wider corridor of cycle routes.

(See image 1 and 2 overleaf)

Liverpool City Region installed a VivaCity sensor on Catharine St to help inform the final design. A range of data sets enabled the authority to understand key issues at the site.

- **Near Miss:** Heatmap and video footage highlighted issues with



The outcomes

Understand what works

VivaCity data has enabled Liverpool City Region to evaluate Active Travel schemes and understand what works. For example, the authority was able to demonstrate good compliance of cyclists on shared active travel infrastructure in Childwall. VivaCity tracks data showed that cyclists were generally sticking to dedicated cycle paths on the road space. This has informed further investment to expand the City LCWIP Corridor.

At another site, Liverpool City Region implemented a segregated cycle lane

design. Daily cyclist numbers almost doubled (+91%) and the number of pedestrians went up by 47%. The proportion of active travel makes up 4.4% at the site, up from 2.3%.

Class	Before	After	% change
Cyclist	104	199	91%
Pedestrian	302	444	47%
Total Active Travel	406	643	58%
Motorbike	93	105	13%
Car	14,611	12,181	-17%
Bus	291	218	-25%
LGV	1,738	1,241	-29%
Trucks	196	114	-42%
Total Motorised	16,929	13,859	-18%

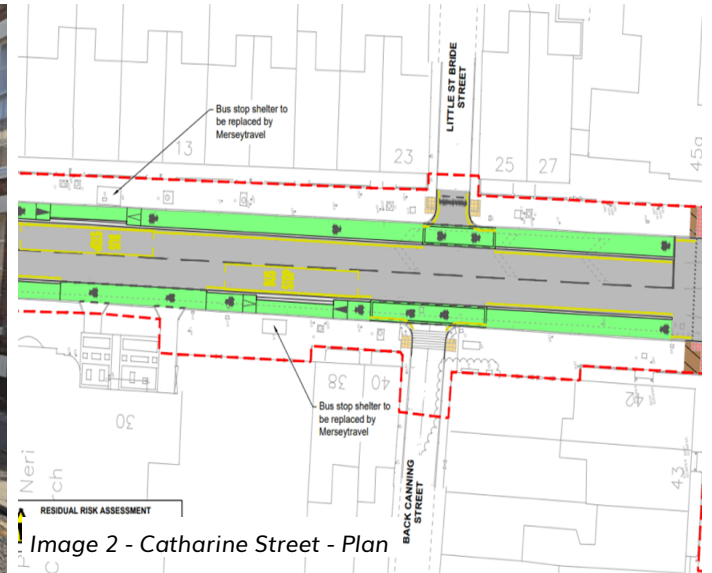
Source: VivaCity • Created with Datawrapper



vehicles overtaking cyclists at fairly high speeds due to the ability to swerve into the outside lane.

- **Speeds:** Data showed relatively high average speeds and proportion of vehicles above the speed limit.

Continued from page 5



- **Tracks:** Cyclist movements did not indicate any issues or conflicts.
- **Dwell Times / Journey Times:** Data sets will help to monitor bus reliability moving forward.

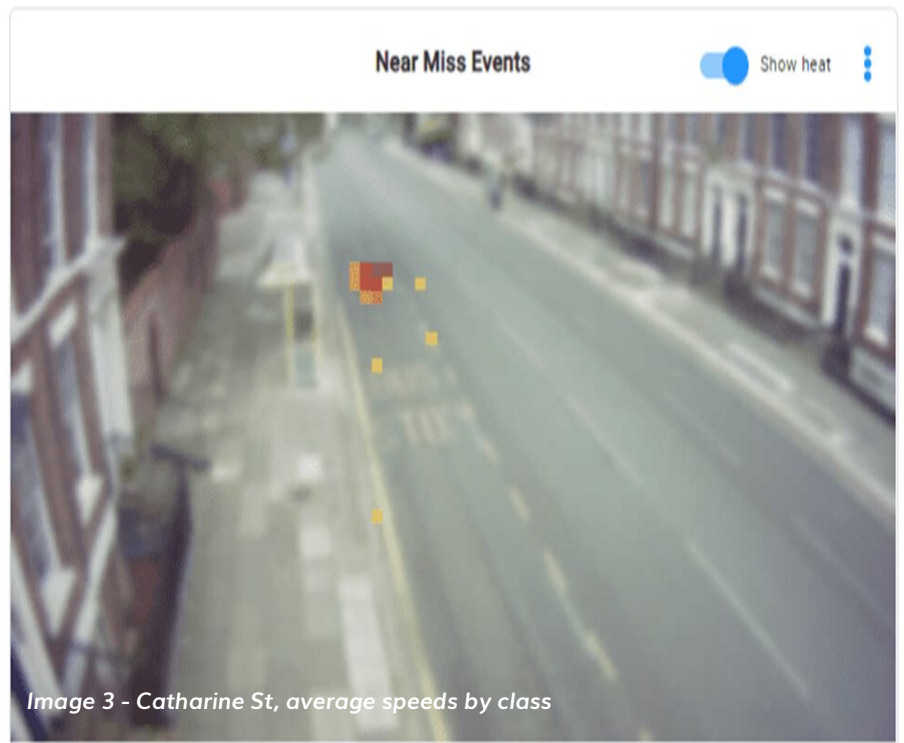
(see image 3, & 4 right)

What next

VivaCity data has been crucial for the Liverpool City Region in developing their Local Cycling and Walking Infrastructure Plan (LCWIP) and accessing Active Travel funding. The authority aims to keep growing the evidence base to drive their active travel goals. Building on the large sensor network, it is now looking to build their first walking and cycling model. This will help to understand current and future demand for new infrastructure.

VivaCity data gives us the confidence at the Combined Authority to develop and implement well designed schemes that drive a shift towards more sustainable modes of transport. It's having this robust evidence that is enormously beneficial to show the work that has been done and encourage further investments to continue the journey we are on."

John Smith, Principal Projects Officer, Liverpool City Region



Circular construction path boosted with introduction of ECOCycle®

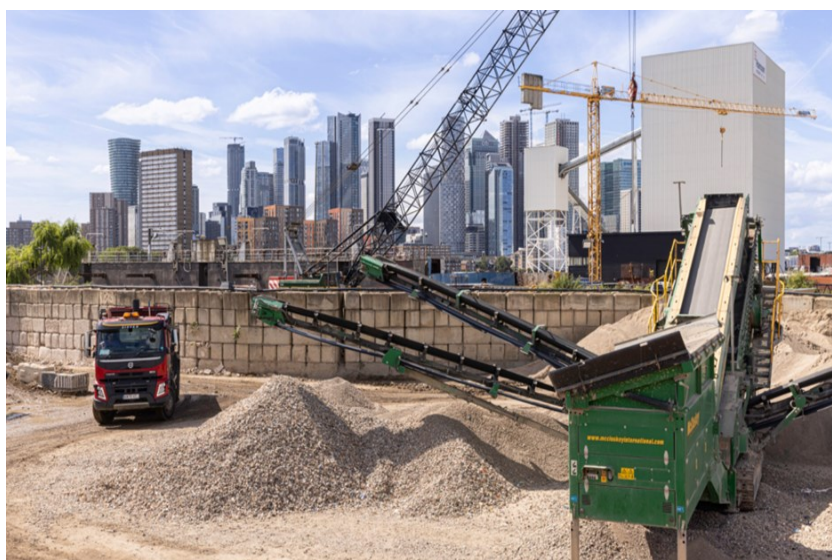
Aggregate Industries, part of Holcim, has demonstrated its clear commitment to make construction more circular with the introduction of ECOCycle® to the UK.

Being rolled out globally by the Holcim network, ECOCycle® categorises products that have been manufactured with at least 10 percent Construction Demolition Materials (CDM), ensuring nothing is wasted.

The circular approach, with its unique mark, is applied to products which contain at least 10% CDM content, following an independent verification, to ensure they are compliant with the applicable clauses of ISO14021:2016. Products with ECOCycle® inside can contain anywhere from 10 to 100 percent of recycled materials inside. This can also be applied to plants that have the capability of processing recycled materials. The move is part of a drive by the company to scale up circular construction, reducing its use of natural resources, and building new from old and is being introduced in the UK in a phased approach across the five different divisions that make up the business.

It will be applied firstly to its asphalt and surfacing product lines, including solutions such as its Foamix product which contains 92 percent of recycled content. A total of 31 of its asphalt plants have been certified to manufacture products with ECOCycle® inside.

It will also be applied to part of its



aggregates portfolio focused on the materials produced through its Sivyer recycling hubs in London and across five of its readymix concrete plants in London and the Midlands.

Kaziwe Kaulule, Aggregate Industries UK's Managing Director of Aggregates, said: "Our goal in the UK and as Holcim globally is clear: to build new from the old.

"With the world witnessing the equivalent of a city the size of New York City being built every month due to rapid population growth and urbanisation, it is imperative to adopt innovative solutions that balance environmental preservation with the needs of expanding towns and cities.

"We are at the forefront of driving circular construction in the UK and with ECOCycle® we can be a vital part in building cities from existing cities, recycling 100% of construction demolition materials into new solutions, so everything gets reused, and nothing gets lost. With our

world's growing population and urbanisation, circular construction is essential to build a future that works for people and the planet.

"With ECOCycle®, we not only preserve natural resources but also minimise waste by repurposing construction demolition materials into valuable assets for construction projects."

In the UK last year Aggregate Industries processed 1.5 million tonnes of CDM which was recycled into new products with an aim to continue to grow that number year on year to achieve more than five million tonnes by 2030.

For more information about ECOCycle® and Aggregate Industries' commitment to circular construction, please visit <https://www.aggregate.com/sustainability/ECOCycle>

Aggregate Industries

Re-flow's autumn update is a boost for UK



For companies in highways, civil engineering, rail, and utilities – every day with outdated management systems is a day of unrealised potential.

A lack of visibility of jobs, cumbersome scheduling, or inconsistent HSE compliance processes are unnecessary in 2024 – and costly too.

With our Big Autumn Update, there's never been a better time for companies to experience the most powerful digital field management software. It's time to streamline operations and let teams focus on what matters most: efficiency, safety, and productivity.

With a free trial, alongside a dedicated support and onboarding department, Re-flow are primed to help every business in infrastructure step up their digital revolution.

So what are these new features and how can they help?

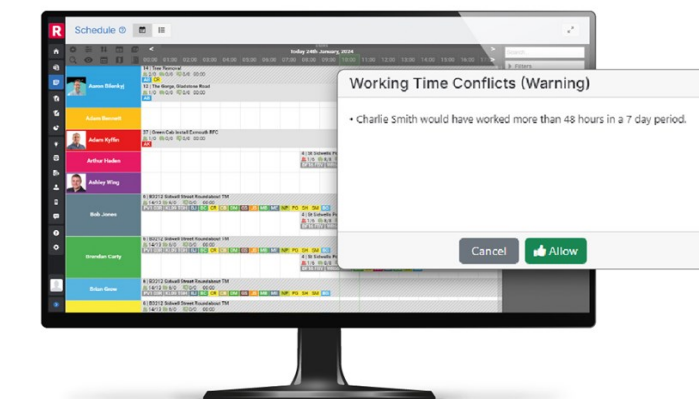
The new update brings with it a raft of customer-focused additions forged in close collaboration with the industry.

Enhanced BoQ System for Hire

We've completely reimagined the BoQ functionality for hire, delivering a powerful upgrade that transforms how

companies manage equipment hire. Now, Re-flow's hire feature seamlessly replaces complex, standalone systems with ease, simplifying even the most intricate processes.

Re-flow's hiring system gives you total control. Simple adjustments, like allowing app users to update on-hire and off-hire dates and times with just a form, cut down admin work and save valuable time.



Fatigue Tracking

To meet the growing demands of the industry, we've introduced fatigue tracking, keeping companies aligned with the Working Time Directive. This feature monitors worker hours to ensure compliance, helping maintain a safer, more regulated work environment. Set custom rules for different teams and get instant alerts when scheduling conflicts

arise, ensuring safety stays front and centre.



Optimised Speed and Efficiency

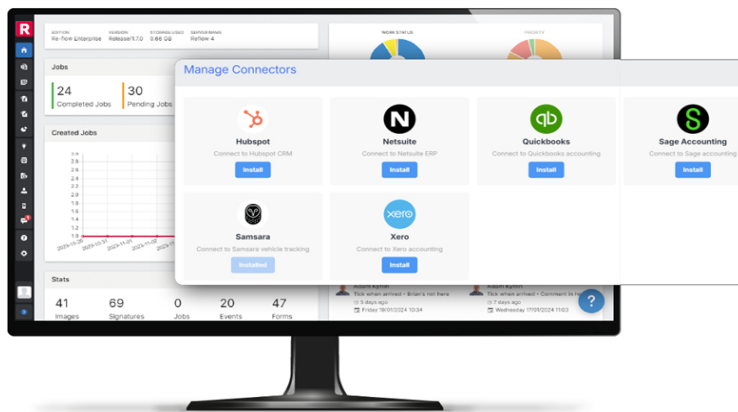
We've also made significant speed and performance optimisations to the system. Re-flow was already fast, but now it's even quicker—virtually instant. These quality-of-life improvements mean that users will experience reduced load times, faster access to data, and an overall smoother experience. This improvement eliminates any frustration over delays, keeping productivity high and operations seamless.

Additional New Features

File Versioning

To streamline your document management, we've introduced file versioning. Users can now replace existing files rather than uploading

multiple versions, reducing clutter and ensuring you're always working with the correct document. Previous versions remain accessible, giving an extra layer of protection. We've also given clients more control over deleted data retention – so they can now choose how long their data is retained in the system.



New Connectors

We've expanded our integration capabilities with new connectors for NetSuite and Samsara. These additions enhance workflow management and provide more flexibility in syncing data with third-party systems, making operations

even more seamless. Importing databases has also been updated, improved, and streamlined.

Overall, this update is designed to make Re-flow even more powerful and user-friendly than ever before, helping infrastructure businesses

operate more efficiently and safely. It also demonstrates our continued commitment to making Re-flow the go-to solution for infrastructure businesses beating their competition and staying ahead of the curve.

At Re-flow, building features for clients and adapting to industry changes and new pieces of legislation is at the forefront of everything that we do.

Why not see for yourself and try Re-flow for free today?

[Click here to book a demo](#)

Re-flow

Geosynthetics InterLayers installed by Foster Contracting are reducing carbon and costs

To reduce carbon and costs, specialist products that extend pavement life are being installed by Foster Contracting Limited (FCL). Geosynthetic interlayers (manufactured by Tensar in Blackburn, UK) are being used to reinforce the asphalt, but they are not being specified enough by the stakeholders.

In the IHE's September 2024 Technical Bulletin, it was highlighted that based on stats from the Department for Transport (DfT), the percentage of [A, B and C class] roads receiving a surface dressing (SD) treatment has declined by 30% since 2016. This was supported by feedback from the Road Emulsion Association (REA), who have recorded a 44% decline in the use of emulsion for surface dressing between 2012 to 2022. The Road

Surface Treatments Association (RSTA) also reports a significant drop in the use of specialist treatments such as geosynthetic interlayers, and the need to treat potholes becomes inversely proportional.

Cracking in asphalt pavements is recognised as one of the biggest problems faced by UK highway authorities. Geosynthetic interlayers, aka asphalt reinforcement products,

are a proven approach for maintaining or extending the life of our pavements. Over the past 40+ years in the UK, geosynthetic interlayers have been used to intercept the path of crack propagation and dissipate / absorb stress. When correctly installed within the asphalt, they are proven to be effective and one of the best solutions available.



Image 1 - Specialist (Foster Contracting Limited) plant is contracted to apply the correct spray rate of bitumen.

When placed between bituminous bound layers these products retard the initiation and/or the propagation of reflective cracking which leads to premature pavement failures (noted in Highways Magazine, 2014).

These solutions have an impressive track record - a successful use over more than four decades, with over 1.82 million sq.m used annually in the UK (2021 RSTA data). However, this figure has decreased by a third since 2017, when 2.7 million sq.m was installed (2017 RSTA data). A severe lack of funding has been limiting the use of these sustainable solutions, which is now reflected in the increased number of cracked and failing roads that we see on our highway networks. The industry has now become distracted due to a pothole pandemic. When pavements begin to fail, most typically starting with some form of cracks, water gets immediate access to the pavement structure. Ingress of water, along with the action of vehicular stresses, when combined with our changing climatic conditions, can increase the number of potholes. This 'pavement disease' rapidly accelerates failures in the pavement structure, which can subsequently double the cost of the maintenance rehabilitation / treatment required, all in a very short space of time.

Product Standards

BS EN 15381 'Geotextiles and Geotextile Related Products – characteristics required for use in pavements and asphalt overlays', sets the standard for manufacturers to produce geosynthetic interlayers with CE (UKCA) marking. The standard defines three key functions associated with geosynthetic interlayers:

1. Reinforcement function (R) - Increasing pavement stiffness / strength, to mitigate reflection cracking.
2. Stress Relief function (STR) - Reducing pavement fatigue and/or the mitigation of reflection cracks.
3. Interlayer Barrier function (IB) - Prevention of moisture ingress into the underlying pavement structure.

To achieve all three functions, the paving grade backing fabric adopted in the product manufacturing process has a mean mass of 130g/m². This fabric is manufactured to absorb / retain a mean residual spray rate of 1.1kg/m² of straight run bitumen. In the UK, a 160/220 pen grade bitumen is common for colder conditions, with a 100/150 pen grade adopted for warmer conditions – these are becoming less common!

Application and Best Practice

By successfully facilitating these functions geosynthetic interlayers can bring the following 3 benefits:

1. Pavement design life / capacity can be maintained, by mitigating the effect of known failures due to reflective cracking / fatigue.
2. Pavement design life / capacity can be extended, by enhancing the structural 'whole life' of a sound pavement, in the anticipation of some form of structural decay in the long term.
3. Pavement thickness can be reduced, whilst still achieving the site-specific pavement design capacity.

All geosynthetic interlayer products utilised in pavement layers should be in accordance with the Code of Practice for Geosynthetics (and Steel Mesh) for Asphalt Reinforcement Interlayers 2018, independently prepared by the Road Surface Treatments Association (RSTA). This document has been peer reviewed by ADEPT. The most recent edition of the RSTA document has also been written and may be used with reference to the ADEPT document 'Guidance on the use of paving fabrics and grids as asphalt reinforcement'.

It provides highway authorities, designers and principal contractors with a thorough understanding of asphalt reinforcement interlayers, their use, laying techniques and applications. The Code of Practice is intended to represent industry best practice. The 2018 edition anticipated the publication of the DMRB CD227 'Design for pavement maintenance' document and the SHW CI.936**, which includes a requirement for Product Assessment Certification, catering for both the products and the Approved Installer(s).



Image 2 – Specialist FCL resources are also contracted to correctly install the geosynthetic interlayers.



Image 3 – Cover sheet of the XAIS PTS Cert. Ref. PA936 003

****Extract:** "Installation of Tensar Glasstex P100 geosynthetic is carried out by The Approved Installer(s) of The Certificate Holder, i.e. Foster Contracting Ltd / Foster Contracting (North) Ltd, in accordance with the Installation Method Statement (as detailed within the Quality Plan) and MCHW SHW Clause 936. The Installer shall be registered under National Highways Sector Scheme (NHSS) 13."

Certification of suppliers is carried out by certification bodies, which in turn are accredited by the United Kingdom Accreditation Service (UKAS).

All installers of geosynthetic interlayers shall have National Highway Sector Scheme (NHSS) 13 certification / accreditation. NHSSs are integrated quality management schemes, bespoke to individual highways specialisms. They aim to make sure that work is carried out to the highest standards of professionalism, using properly trained and competent staff.

Carbon savings, reduced costs and sustainability

In April 2023, PYE Management Ltd

produced a document for the RSTA, 'RSTA Carbon Emissions for Road Surface and Other Maintenance Treatments for Asset Management Purposes' which states that road surface treatments are methods or materials for extending the lifetime of road pavements, delaying the need for major maintenance or rehabilitation. This leads to the clear conclusion that road surface treatment methods have a lower impact on the Greenhouse Gas (GHG) emissions produced by traditional methods.

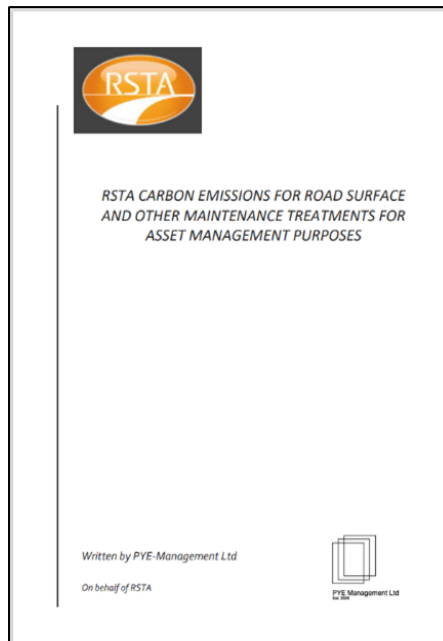


Image 4 – Cover sheet of the "RSTA carbon emissions for road surface and other maintenance treatments for asset management purposes" document.

Note: In April 2025, the RSTA plan to publish the 2nd Edition of the RSTA Carbon Emissions Report, which will include updated data which assesses 60-year or 90-year whole life figures, based on A1 to A5 and B1 to B5 values.

These claims are not usually made based on robust, standard led assessments as there is currently a lack of standardisation and consistency in producing carbon footprints. The purpose of the methodology used by the RSTA*, is using a protocol for producing a carbon footprint in accordance with

the current International Standards, (BS EN 15804, modules A1-A5), and then apply this to the different treatments as well as the conventional methods of resurfacing or patching, to determine which approach has a lower carbon footprint**.

**Note: More details (and the full PYE Management Ltd – RSTA document) are available on the RSTA website: rsta-uk.org.*

***A carbon footprint is defined as a calculation of the amount of GHG produced from using resources to make products and/or provide services, expressed as a carbon dioxide equivalent (CO2e). A conversion factor is applied to the activity data, which enables the emissions to be converted to a common unit of KgCO2e (kilogram of carbon dioxide equivalent). (Gov, 2022)*

In 2021, National Highways set out their Net zero plan for highways with a commitment to have net zero emissions from construction and maintenance activity by 2040. In 2022, National Highways launched their Net Zero plan for concrete, steel and asphalt. The roadmaps describe how emissions can be reduced through decarbonising the raw materials, the manufacture of the materials, transport and construction emissions. The process aligns with the A1 to A5 modules defined by EN15804: Sustainability of Construction Works. (National Highways, 2023).

Worked Examples demonstrating carbon and cost reduction.

When FCL incorporate one of Tensar's geosynthetic interlayers into a pavement section, it can be simplistically compared to a more traditional pavement maintenance intervention approach, with each site

being assessed to calculate the typical reduction in carbon and costs.

Craig Andrews, Technical Director of FCL, remarks that as can be seen by the

substantial savings shown on the left, prioritising proactive maintenance over a more traditional reactive approach, will reduce the up-front costs, or the need for subsequent costly abortive repairs and unnecessary repeat rehabilitation events. As stakeholder budgets are being so constrained, particularly in the Local Highway Authorities, the case for installing a reduced section, without having a negative impact on the resilience of the pavement, or maintaining / extending pavement life, to reduce whole life resources, is becoming more accepted, but not sufficiently routine. Geosynthetic interlayers will enable an efficient maintenance strategy. The MCHW SHW Cl.936, enables the valid utilisation of geosynthetic interlayers with a guaranteed level of performance.

Paul Boss, former CEO of the Road Surface Treatments Association stated, "FCL have successfully demonstrated the carbon and cost benefits of using geosynthetic interlayers in highways / road maintenance construction, as part of the implementation of a sustainable and efficient asset management strategy. As a local authority / Amey asset manager for the period 2005 – 2020, this is exactly the type of comparisons of carbon and cost for various pavement scenarios that highway asset managers require.

Emma Pye, Founder and Director of PYE Management Ltd endorsed FCL's carbon and cost benefits approach. "It is extremely useful and informative, showing both the potential for construction resource reduction, or whole life carbon and cost savings in using FCL's Geosynthetic Interlayers. FCL have used the RSTA's Carbon Emissions Report exactly as it was intended, to take the base carbon information per sq.m, to produce calculations for low carbon strategies.

Example of an interlayer preventing the need for one more 40mm surface course intervention:
 The conventional method considers the initial values for a 40mm thick surface course, which fails prematurely due to crack propagation and water ingress, and as such requires a further intervention. The inclusion by FCL of one of Tensar's geosynthetic interlayers, prevents an early pavement failure.

FCL's Geosynthetic Interlayer @ 1 kgCO₂e/m² (mean figures rounded)
 40mm Surface Course @ 6 kgCO₂e/m² (initial 40mm surface – cracks retarded)
 Vs
 40mm Surface Course (initial) @ 6 kgCO₂e/m² (initial surface fails prematurely due to cracking)
 40mm Surface Course @ 6 kgCO₂e/m² (subsequent 40mm intervention required)
= 5 kgCO₂e/m² (29% reduction in whole life kgCO₂e/m²), by adopting FCL's approach.

FCL's Geosynthetic Interlayer @ £6/m² (mean figures rounded)
 40mm Surface Course @ £20/m² (initial 40mm surface – cracks retarded)
 Vs
 40mm Surface Course (initial) @ £20/m² (initial surface fails prematurely due to cracking)
 40mm Surface Course @ £20/m² (subsequent 40mm intervention required)
= £14/m² whole life cost savings (35% reduction in £/m²), by adopting FCL's approach.

Example of an interlayer preventing the need for two more 50mm surface course interventions:
 The conventional method considers the initial values for a 50mm thick surface course, which fails prematurely, twice, due to crack propagation and water ingress, and as such requires further interventions. The inclusion by FCL of one of Tensar's geosynthetic interlayers, prevents the early pavement failures.

FCL's Geosynthetic Interlayer @ 1 kgCO₂e/m² (mean figures rounded)
 50mm Surface Course @ 7 kgCO₂e/m² (initial 50mm surface – cracks retarded)
 Vs
 50mm Surface Course (initial) @ 7 kgCO₂e/m² (initial surface fails prematurely due to cracking)
 2 x 50mm Surface Course @ 14 kgCO₂e/m² (2 subsequent 50mm interventions required)
= 13 kgCO₂e/m² (62% reduction in whole life kgCO₂e/m²), by adopting FCL's approach.

FCL's Geosynthetic Interlayer @ £6/m² (mean figures rounded)
 50mm Surface Course @ £22/m² (initial 50mm surface – cracks retarded)
 Vs
 50mm Surface Course (initial) @ £22/m² (initial surface fails prematurely due to cracking)
 2 x 50mm Surface Course @ £44/m² (2 subsequent 50mm interventions required)
= £38/m² whole life cost savings (58% reduction in £/m²), by adopting FCL's approach.

Example of an interlayer preventing the need for one more 100mm deep intervention:
 The conventional method considers the initial values for a 100mm thick treatment, which fails prematurely due to crack propagation and water ingress, and as such requires a further 100mm deep intervention. The inclusion by FCL of one of Tensar's geosynthetic interlayers, prevents the early pavement failure.

FCL's Geosynthetic Interlayer @ 1 kgCO₂e/m² (mean figures rounded)
 100mm Surface + WM Binder @ 14 kgCO₂e/m² (initial 100mm surface – cracks retarded)
 Vs
 100mm Surface + WM Binder @ 14 kgCO₂e/m² (initial 100mm fails prematurely due to cracking)
 100mm Surface + WM Binder @ 14 kgCO₂e/m² (subsequent 100mm intervention required)
= 13 kgCO₂e/m² (46% reduction in whole life kgCO₂e/m²), by adopting FCL's approach.

FCL's Geosynthetic Interlayer @ £6/m² (mean figures rounded)
 100mm Surface + WM Binder @ £40/m² (initial 100mm surface – cracks retarded)
 Vs
 100mm Surface + WM Binder @ £40/m² (initial 100mm fails prematurely due to cracking)
 100mm Surface + WM Binder @ £40/m² (subsequent 100mm intervention required)
= £34/m² whole life cost savings (43% reduction in £/m²), by adopting FCL's approach.

Example of an interlayer (with 100mm of asphalt, preventing the need for a 200mm deep intervention:
 The conventional method considers the initial values for a 200mm thick treatment, which is not viable due to scheme constraints. The inclusion by FCL of one of Tensar's geosynthetic interlayers, prevents the early pavement failure of the pavement structure.

FCL's Geosynthetic Interlayer @ 1 kgCO₂e/m² (mean figures rounded)
 100mm Surface + WM Binder @ 14 kgCO₂e/m² (initial 100mm surface – cracks retarded))
 Vs
 200mm Deep Treatment @ 24 kgCO₂e/m² (200mm depth intervention required)
= 9 kgCO₂e/m² (37% reduction in construction kgCO₂e/m²), by adopting FCL's approach.

FCL's Geosynthetic Interlayer @ £6/m² (mean figures rounded)
 100mm Surface + WM Binder @ £40/m² (initial 100mm surface – cracks retarded)
 Vs
 200mm Deep Treatment @ £70/m² (200mm depth intervention required)
= £24/m² construction cost savings (34% reduction in £/m²), by adopting FCL's approach.



Image 5 – CPS M25 Bell Common Tunnel Resurfacing Scheme

Having this information enables customers to make both sustainable and financially efficient decisions when planning highways works, a key tool that is very much needed in a climate where budgets have been constrained."

Craig concludes, "This can facilitate the efficient delivery of larger areas of treatment, or an increased number of

treatment sites. The economic productivity of the UK&I depends on providing a safe and resilient network. Roads facilitate the movement of goods, people, and services, and a resilient network ensures continuity of economic activity, supporting local economies and encouraging growth.

We need to increasingly adopt much more sustainable road maintenance

strategies, reducing delays, carbon and costs, keeping our roads in a safe, serviceable and resilient condition."

For more information, visit www.fcl.uk or contact Craig direct: craig.andrews@fcl.uk / 07355 679023

FCL

Winvic completes second Lincolnshire County Council highways framework project ahead of schedule



The work was originally scheduled to end in November but, following a sustained push to deliver essential upgrades with minimal disruption and maximum benefits to nearby communities, businesses and road users, was completed by late September.

The General Works Lot contract has been designed to deliver new infrastructure assets and improvements across the County over a four-year period, and has tasked Winvic with improving multiple highway assets, including drainage, footways, kerbs, surfacing, traffic signals and road markings.

Activities at Carholme Road and Lucy Tower Street junction have featured

Winvic Construction Ltd, a leading main contractor specialising in the design and delivery of private and public sector construction and civil engineering projects, has announced the second project awarded to it under the [Lincolnshire County Council](#) highways framework contract

has been completed ahead of schedule.

Project construction began in April, focusing on resurfacing and signal improvement on Newland, between Carholme Road and Mint Street, along with sections of Wigford Way, Mint Lane and Lucy Tower Street.

the replacement and upgrade of existing signal equipment, new construction of traffic islands and footways replacements. Newland has also had footpath replacements and new carriageway surfacing.

Further headline statistics from the project include:

- The placement of over 4,500 tonnes of road-building materials
- Repairing 275 metres of highways drainage and the installation of 30 new traffic signals at the Lucy Tower Street/Newland and Carholme Road/Brayford Way junctions
- Over a mile of new footway constructed
- 1.2km of new kerbing laid
- 575 feet of traffic signal wires and traffic signal ducting installed

Rob Cook, Winvic's Managing Director for Civils and Infrastructure, comments: "I'd like to thank the Winvic team and Lincolnshire County Council's team for working so well together to not only meet, but exceed expectations on the Newland Lincoln project, our second under the



four-year highways framework contract. We're delighted to have established new and efficient working practices, including collaborating effectively with a local surfacing sub-contractor, to successfully deliver this project ahead of schedule.

Balancing a fast-paced programme with the safety of our workforce and the public, while remaining considerate of nearby communities, businesses, and road users was a priority. It's great that our positive interactions with the local community have been warmly

welcomed.

"Winvic will continue to work hard to ensure works on other framework projects, such as Dysart Road in Grantham, are progressed quickly and efficiently to avoid disruption whilst delivering long-lasting infrastructure improvements across Lincolnshire."

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Welcome to our regular series of articles relating to Highway law, Court decision and other information from colleagues in the legal fraternity

The Long Road to Discontinuance



Sometimes even those matters that appear to be relatively straightforward, on paper at least, will follow a somewhat prolonged and deviated route before eventually reaching trial. This is especially true in those cases where a claimant's representatives will attempt to introduce new arguments and amendments at various stages throughout the proceedings.

Such a route was taken in the recent case of *JE v Vale of Glamorgan Council*, in which Dolmans represented the Defendant Local Authority.

As will be seen, the Claimant's various attempts to prevaricate and alter his case in this particular matter backfired somewhat, leading to the Claimant's eventual discontinuance of his claim.

Background/Allegations

The Claimant alleged that he was walking through a car park at the rear of some houses when he tripped in a pothole, causing him to fall and sustain personal injuries.

It was initially alleged that the Claimant's alleged accident was caused by the negligence and/or breach of statutory duty of the Defendant Local Authority's employees, servants and/or agents. The Claimant alleged in his initial Particulars of Claim that the Defendant Local Authority was in breach of Section 2 of the Occupiers' Liability Act 1957 accordingly.

Contesting Jurisdiction

Before filing/serving any Defence in this matter, there were certain jurisdiction issues that needed to be resolved. The Claimant appeared from the pleadings to have issued Court proceedings twelve days outside of the requisite limitation period. The Claimant's Solicitors then attempted to serve the said Court proceedings some three months later than the date that they were supposed to be served, normally within four months of the issue date.

As such, Dolmans, on behalf of the Defendant Local Authority, filed an Acknowledgment of Service contesting jurisdiction, and this was followed by an appropriate Application for a declaration that the Court had no jurisdiction to try the Claimant's claim and/or that the Claimant's claim be struck out. The initial hearing of the Defendant Local Authority's said Application had to be adjourned, given that the Claimant's Solicitors could not secure Counsel in time for the same.

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The Claimant's Solicitors subsequently argued that Court proceedings had been forwarded to the Court for issue prior to expiry of the relevant limitation date. However, and despite several requests for proof of the same, the Claimant's Solicitors initially failed to provide any such documentation. They eventually provided a copy of the relevant Notice of Issue, which indicated that Court proceedings were, in fact, forwarded to the Court in time, but the arguments regarding late service of such Court proceedings remained.

After some considerable time and further requests, the Claimant's Solicitors eventually provided a copy of a Court Order that purported to extend the date for service of Court proceedings. However, the said copy Court Order had not been received by the Defendant Local Authority and, again, proof of service of the said copy Court Order and associated Application was requested.

The Deputy District Judge hearing the said Application was persuaded, on balance, that Court proceedings had been properly issued and served, but was conscious of the Defendant Local Authority's arguments regarding the Claimant's Solicitor's conduct/lack of co-operation in particular, which was reflected in a substantially reduced Costs Order.

Application to Amend Particulars of Claim – Part One

The Claimant's Solicitors subsequently issued an Application to file and serve Amended Particulars of Claim, to include specific allegations under the Highways Act 1980.

Although the Claimant made a brief reference to the Highways Act 1980 in his Particulars of Claim, no allegations regarding any breach of the same were pleaded. However, and for the avoidance of any doubt, Dolmans, on behalf of the Defendant Local Authority, had already pleaded in the Defence that the location of the Claimant's alleged accident was not part of the adopted highway, that the land in question was owned and controlled by the Defendant Local Authority for the purposes of the Occupiers' Liability Act 1957 which had been pleaded, and that there was no registered right of way at the said location. As such, it was argued that there was no need for the Claimant to amend his Particulars of Claim to include breach of the Highways Act 1980.

Despite the Defendant Local Authority's arguments, the District Judge hearing the Claimant's said Application granted permission for the Claimant to amend his Particulars of Claim to include breach of the Highways Act 1980 and for the Defendant Local Authority to amend its Defence accordingly.

However, the District Judge was obviously not impressed that breach of the Highways Act 1980 had not been properly pleaded previously and ordered the Claimant to pay the Defendant Local Authority's costs of and occasioned by the amendment, such costs to be assessed at the conclusion of the matter.

At the same hearing, the District Judge provided further Fast Track directions so that disclosure and exchange of Witness Statements could at last take place.

Defendant Local Authority's Witness Evidence – Not Adopted Highway

The Defendant Local Authority's witness confirmed that the location of the Claimant's alleged accident was Housing land owned by the Defendant Local Authority.

The Claimant's photographs of the alleged defect were disputed. The measurement shown in one of the Claimant's said photographs did not appear to be accurate and did not show the depth of any tripping face. The level shown in the said photographs could not be seen completely and did not appear to be resting upon anything to one side. The photograph of the measurement had also been taken above from an angle. Although there appeared to be evidence of some surface wear/erosion, the location of the alleged defect had not been subject to a previous repair and there were no records of any previous repairs where the

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alleged defect was located.

Plans showing the extent of any adopted highways and designated public rights of way in the area where the Claimant's alleged accident occurred were exhibited to the Defendant Local Authority's witness evidence. No adopted highways and/or designated public rights of way were shown anywhere near the location of the Claimant's alleged accident. The location of the Claimant's alleged accident was in front of some garages, so would normally only be used by people using those garages.

The location of the Claimant's alleged accident was inspected and maintained on a reactive basis, which the Defendant Local Authority considered to be adequate and reasonable given usage of the area, namely mainly vehicle access to the adjacent garages, and the lack of previous complaints and/or accidents relating to the said location. Indeed, the Defendant Local Authority had no record of any complaint in relation to the alleged defect during the twelve month period prior to the date of the Claimant's alleged accident. The Defendant Local Authority also has no record of any other accident occurring at the location of the Claimant's alleged accident during the twelve month period prior to the date of the same.

It was argued that the relevant location was repaired merely as a matter of prudence following the Claimant's alleged accident and because of the reactive system in place. It was argued that as there was no scheduled system of inspection/maintenance in place at the said location it would have been prudent to undertake repairs, rather than monitor the alleged defect, given that there would be no subsequent/scheduled inspection. It was also argued that it did not follow that the location was deemed to be dangerous just because repairs were undertaken in these circumstances and especially as the location was subject mainly to vehicle access and not pedestrian use.

It was reiterated that the location of the Claimant's alleged accident was not part of the adopted highway and this was clear from the plans exhibited to the Defendant Local Authority's witness evidence.

Application to Amend Particulars of Claim – Part Two

Less than a month before the trial date, the Claimant gave notice of his intention to issue yet a further Application to amend his Particulars of Claim. This time the Claimant sought to amend his Particulars of Claim to include breach of the Occupiers' Liability Act 1984, in case the Court held that the Claimant was not a lawful visitor to the relevant location.

Having sought the Defendant Local Authority's instructions, Dolmans advised that any such Application would be opposed, particularly as this was so close to the trial date and the Particulars of Claim had already been amended, as referred to above. There was also insufficient detail in the Claimant's Application Notice, with no background/reasons whatsoever provided for in the Application. In any event, it was argued that the proposed amendment did not appear to be relevant.

Part 18 Requests for Further Information

At the same time, the Claimant's Solicitors served two separate Part 18 Requests for Further Information and requested responses within fourteen days given the close proximity to the trial date.

Dolmans, on behalf of the Defendant Local Authority, disputed the need for the said Part 18 Requests for Further Information. It was argued that the said Part 18 Requests were far too late. In any event, the said Requests were either questions for cross-examination or were irrelevant and appeared to conflate a Highways Inspector observing/highlighting an alleged defect on neighbouring land as making that land a Highway Maintainable at Public Expense, which the Defendant local Authority argued was incorrect.

Indeed, the Highway maintenance document upon which the Claimant sought to rely upon explicitly referred

CASE by CASE

to Housing land, not Highway, and demonstrated the reactive system in place.

Desperate Measures – Claimant’s Various Offers and Threat of Adjournment

The Claimant made several offers to attempt to settle the matter throughout the proceedings, including various Part 36 quantum and liability offers. As the trial date approached, the Claimant sought to settle his claim by way of a Calderbank offer.

Suffice to say, none of the said offers were accepted by the Defendant Local Authority, but even then the Claimant’s Solicitors made a last minute attempt to settle the matter by offering a much reduced global settlement figure to include the Claimant’s damages and costs. Again, this was rejected.

Likewise, the Claimant’s Solicitor’s intimation that they would seek an adjournment of the trial pending their proposed Application to amend the Claimant’s Particulars of Claim and service of the suggested Part 18 Requests for Further Information, referred to above, were quickly dispelled on behalf of the Defendant Local Authority.

Discontinuance at Last!

Having been backed into a corner, the Claimant had no option but to proceed to trial or discontinue. By way of sweetener to take the latter approach and given that this was a QOCS matter in any event, the Defendant Local Authority agreed that it would not seek to enforce the earlier Costs Order if the Claimant discontinued without any further delay.

The Claimant agreed and the matter was discontinued, thereby saving additional costs and Counsel’s Brief fee in particular.

Comment

As with all litigated matters, the success or otherwise of a Claimant’s claim will depend upon various issues and how these are dealt with before the matter even gets to trial.

In the above matter, the Claimant attempted several times to modify his case and thereby provide the best possible chance of success at trial. It was clear from the Claimant’s various attempts to amend his Particulars of Claim that his hope was to throw as much mud as possible and hope that something would stick. However, it was equally clear that the Defendant Local Authority had a strong Defence that was supported by robust witness evidence.

As such, it was important not to get distracted by the Claimant’s various attempts to interfere with procedural aspects, to combat these quickly and to focus on the Defence. Indeed, Dolmans, on behalf of the Defendant Local Authority, maintained a robust stance throughout this matter. From the outset, the Claimant’s Solicitors were aware that the Defendant Local Authority would be strongly defending the matter and were under no illusion that attempts to prevaricate would not be tolerated.

It was this stance and consistent refusals to just accede to the Claimant’s various requests, Applications and later attempts to settle, that led to the Claimant’s eventual discontinuance, with resultant damages and costs savings for the Defendant Local Authority.

Tom Danter, Dolmans Solicitors



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